

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A pulley support double row ball bearing apparatus comprising:

an outer ring with an outer diameter of less than or equal to 65 mm and having a double row ~~outer ring~~ raceway on an inner circumferential surface thereof;

an inner ring having a double row ~~inner ring~~ raceway on an outer circumferential surface thereof;

a plurality of balls each with a diameter of less than or equal to 4 mm in diameter, the balls being provided as several balls retained by retainer portions so as to be free rolling between the outer ~~ring~~ raceways and the inner raceways; and

~~a retainer which holds the balls so as to be free rolling; and~~

~~a seal ringsring, disposed which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, to and seals~~

eff openings on both ends of an inner space accommodating the balls, and

wherein an axial [[a]] width of the ball bearing related to the axial direction is less than or equal to 45% of an the inner diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on at the periphery of the support member, and wherein

wherein near both ends of the inner circumferential surface of the outer ring, chamfers are provided on the axially outside ends of continuous portions disposed that exists between each of the outer ring raceways and a large diameter portions provided on both ends of the this inner circumferential surface of the outer ring for stoppingly engaging with at the seal rings, each said there is provided a chamfer having an axial length which is more than or equal to 30% of more than the axial length of the continuous portion, and tapering which tapers in a direction of increasing inner diameter as it approaches the large diameter portion.

2. (currently amended) A pulley support double row ball bearing apparatus comprising provided with:

an outer ring with an outer diameter of less than or equal to 65 mm and having a double row outer ring raceway on an inner circumferential surface thereof;

an inner ring having a double row inner ring raceway on an outer circumferential surface thereof;

a plurality of balls each with a diameter of less than or equal to 4 mm in diameter, provided as several the balls being retained by retainer portions so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ring, disposed which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, to and seals off openings on both ends of an inner space accommodating the balls, and

wherein an axial [[a]] width of the ball bearing related to the axial direction is less than or equal to 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is

rotatably supported on at the periphery of the support member,
wherein

~~with regard to the radial dimensions, each row of~~
the outer ring raceways is made radially shallower than each
row of the inner ring raceways.

3. (currently amended) A pulley support double row ball bearing apparatus comprising~~provided with:~~

~~an outer ring with an outer diameter of less than or equal to 65 mm and having a double row outer ring raceway on an inner circumferential surface thereof;~~

~~an inner ring having a double row inner ring raceway on an outer circumferential surface thereof;~~

~~a plurality of balls each with a diameter of less than or equal to 4 mm in diameter, provided as several the balls being retained by retainer portions so as to be free rolling between the outer ring raceways and the inner raceways;~~

~~a retainer which holds the balls so as to be free rolling; and~~

~~a seal ringsring, disposed which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, to and seals~~

eff openings on both ends of an inner space accommodating the balls, and

wherein an axial width of the ball bearing related to the axial direction is less than or equal to 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on at the periphery of the support member, and

wherein each of the retainers is the retainer portions are designed such that inside surfaces of respective pockets are adjacent to and facing the rolling surfaces of each of the respective balls, and the radial positioning of the retainer portions is determined by the balls, wherein and a difference between a pitch diameter of a series of the balls and an inner diameter of the retainer is greater than a difference between an outer diameter of the retainer and the pitch diameter of the series of balls.

4. (currently amended) A pulley support double row ball bearing apparatus comprising provided with:

an outer ring with an outer diameter of less than or equal to 65 mm and having a double row outer ring raceway on an inner circumferential surface thereof;

an inner ring having a double row inner ring raceway on an outer circumferential surface thereof;

a plurality of balls each with a diameter of less than or equal to 4 mm in diameter, provided as several the balls being retained by retainer portions so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal rings, disposed which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, to and seals off openings on both ends of an inner space accommodating the balls, and

wherein an axial width of the ball bearing related to the axial direction is less than or equal to 45% of an the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on thea periphery of the support member, wherein

each of the retainers is the retainer portions are designed such that inside surfaces of respective pockets are adjacent to and facing the rolling surfaces of each of the respective balls, and the radial positioning of the retainer

portions is determined by the balls, and a difference between an inner diameter of the outer ring and an outer diameter of the each retainer portion is greater than a difference between an inner diameter of the each retainer portion and an outer diameter of the inner ring.

5. (currently amended) A pulley support double row ball bearing apparatus comprising provided with:

an outer ring with an outer diameter of less than or equal to 65 mm and having a double row outer ring raceway on an inner circumferential surface thereof;

an inner ring having a double row inner ring raceway on an outer circumferential surface thereof;

a plurality of balls each with a diameter of less than or equal to 4 mm in diameter, provided as several the balls being retained by retainer portions so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal rings, disposed which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, to and seals

eff openings on both ends of an inner space accommodating the balls, and

wherein an axial width of the ball bearing related to the axial direction is less than or equal to 45% of an the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on the periphery of the support member,

wherein a back-to-back duplex type contact angle is provided for given to each of the balls arranged in a double row, and an inner diameter of the outer ring on an axially outside portion, being an anti-loading side, of each row of the outer ring ~~raceways~~ raceway is greater than or equal to the largest diameter of each row of the outer ring ~~raceways~~ raceway.

6. (currently amended) A pulley support double row ball bearing apparatus comprising provided with:

an outer ring with an outer diameter of less than or equal to 65 mm and having a double row outer ring raceway on an inner circumferential surface thereof;

an inner ring having a double row inner ring raceway on an outer circumferential surface thereof;

a plurality of balls each with a diameter of less than or equal to 4 mm in diameter, provided as several the balls each being retained by retainer portions so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ringsring, disposed which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, to and seals off openings on both ends of an inner space accommodating the balls, and

wherein an axial width of the ball bearing related to the axial direction is less than or equal to 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on the periphery of the support member, wherein

a face-to-face duplex type contact angle is provided for given to each of the balls arranged in a double row, and an inner diameter of the outer ring on an axially inside portion, being an anti-loading side, of each row of the outer ring raceways raceway is greater than the largest diameter of each row of the outer ring raceways raceway.

7. (currently amended) A pulley support double row ball bearing apparatus according to claim 1, wherein at least one member of the pulley to which the outer ring is internally fitted, and the support member to which the inner ring is externally fitted, is made from a material for which athe coefficient of linear expansion is greater than that of athe metal material constituting eacha raceway—which is fitted to the member, and a thickness related to the radial direction of the raceway at a portion corresponding to a bottom part of a raceway groove formed in eachthe raceway fitted to the member is ever greater than 50% of the diameter of athe balls of the ball bearing.

8. (currently amended) A pulley support double row ball bearing apparatus according to claim 2, wherein at least one member of the pulley to which the outer ring is internally fitted, and the support member to which the inner ring is externally fitted, is made from a material for which athe coefficient of linear expansion is greater than that of athe metal material constituting eacha raceway—which is fitted to the member, and a thickness related to the radial direction of the raceway at a portion corresponding to a bottom part of a raceway groove formed in eachthe

~~raceway fitted to the member is greater than ever 50% of the diameter of the balls of the ball bearing.~~

9. (currently amended) A pulley support double row ball bearing apparatus according to claim 3, wherein at least one member of the pulley to which the outer ring is internally fitted, and the support member to which the inner ring is externally fitted, is made from a material for which the coefficient of linear expansion is greater than that of the metal material constituting each raceway which is fitted to the member, and a thickness related to the radial direction of the raceway at a portion corresponding to a bottom part of a raceway groove formed in each the raceway fitted to the member is greater than ever 50% of the diameter of the balls of the ball bearing.

10. (currently amended) A pulley support double row ball bearing apparatus according to claim 4, wherein at least one member of the pulley to which the outer ring is internally fitted, and the support member to which the inner ring is externally fitted, is made from a material for which the coefficient of linear expansion is greater than that of the metal material constituting each raceway which is fitted to the member, and a thickness related to the

radial direction of the raceway at a portion corresponding to a bottom part of a raceway groove formed in each~~the~~ raceway fitted to the member is greater than over 50% of the diameter of at the balls of the ball bearing.

11. (currently amended) A pulley support double row ball bearing apparatus according to claim 5, wherein at least one member of thea pulley to which the outer ring is internally fitted, and thea support member to which the inner ring is externally fitted, is made from a material for which at the coefficient of linear expansion is greater than that of at the metal material constituting eacha raceway which is fitted to the member, and a thickness related to the radial direction of the raceway at a portion corresponding to a bottom part of a raceway groove formed in each~~the~~ raceway fitted to the member is greater than over 50% of the diameter of at the balls of the ball bearing.

12. (currently amended) A pulley support double row ball bearing apparatus according to claim 6, wherein at least one member of thea pulley to which the outer ring is internally fitted, and thea support member to which the inner ring is externally fitted, is made from a material for which at the coefficient of linear expansion is greater than

that of athe metal material constituting each raceway—which
~~is fitted to the member~~, and a thickness related to the
radial direction of the raceway at a portion corresponding
to a bottom part of a raceway groove formed in each~~the~~
raceway ~~fitted to the member~~ is greater than ever 50% of the
diameter of athe balls of the ball bearing.